

Appl. No. : 10/008,780
Filed : November 13, 2001

REMARKS

In the Office Action, the Examiner rejected pending claims 1-3, 6-11, 14, 17, 18, 21, 23, 24, and 26-28 under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the Applicant regards as the invention. In particular, the Examiner indicated that the scope of claim 1 is indefinite as the integrated circuit is only functionally recited in the preamble however later states that the integrated circuit contact elements are electrically connected to the upper surface of the housing floor. The Examiner indicates that this language is conflicting and unclear and questions whether the Applicant's intent is to positively recite the integrated circuit. The Examiner indicates similar concerns with claim 21 and further objects to the use of the word "materials" in the last line of claim 1, indicating that it should be explicitly specified which materials are being referred to.

The Applicant thanks the Examiner for noting this lack of clarity and by this paper amends the pending claims in such a manner as to particularly point out and distinctly claim the subject matter which the Applicant regards as the invention. Specifically, the Applicant hereby amends Claim 1 such that the integrated circuit is cited in the preamble of the claim and not cited explicitly as a claim element in the body of the claim. Please note that where reference is made in the body of the claim to aspects of the integrated circuit, such as for example the circuit contacts, such reference is made to define the structure of the claim elements and/or the interrelationships therebetween, for example, "a housing floor comprising...an upper surface with contact surfaces arranged to correspond to the circuit contacts..." (claim 1 as currently amended). Note that the reference to the circuit contacts is made to define the physical orientation of the contact surfaces as a structural limitation and not as an intended use of the invention.

The Applicant also strikes the claim recitation of the "materials" in the final line of claim 1 and amends the claim to cite that there is "no permanent connection between the contact surfaces of the housing and the circuit contacts of the at least one integrated circuit" (claim 1 as currently amended). The Applicant believes that this particularly points out and distinctly claims the "materials" previously cited.

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The Applicant amends claim 21 by this paper to positively cite a "circuit chip" as a claim element and to strike the reference to the "integrated circuit chip" in the preamble of the claim. The Applicant believes that the pending independent claims 1 and 21 as well as the claims depending therefrom respectively are amended by this paper to fully comply with the requirements of 35 U.S.C. § 112, second paragraph.

The Examiner also rejected claims 1-3, 6, 10-11, 14, 17, 21, 23, 24, 26, and 27 under 35 U.S.C. § 102(b) as being anticipated by the Horvath reference (US 4,415,025). Following a careful review of the Horvath '025 reference, the Applicant notes that a thermal element 24 is illustrated in Figures 1-3 of Horvath and described as "basically a bulged disk made of a heat conductive material, typically a metal or alloy, preferably an alloy in which copper or silver is the major constituent" (column 3, lines 31-34). The thermal element 24 is shown with a circular shape however Horvath also indicates that alternatives such as a polygonal shape are possible (column 3, lines 40-42). Horvath '025 also teaches that the thermal element 24 includes a number of slots 26, 28 and teaches in some detail various arrangements of the slots 26, 28 to achieve desired resilient loading of the thermal element 24 to devices 12 mounted within the Horvath '025 device to facilitate heat transfer from the devices 12 to an overlying finned cap 16 with fins 18 to facilitate efficient cooling of the devices 12.

Horvath '025 however clearly teaches that "the devices 12 are electrically connected to the metallurgy system on or within substrate 10 by **solder interconnections** 22. In operation, the devices 12 generate heat which must be dissipated by heat conduction through solder **bonds** 22" (column 3, lines 20-24). Horvath also indicates in the description of the field of the invention that the invention relates to "integrated circuit package assemblies where the devices are mounted on substrates with solder **bonds**" (column 1, lines 6-13). Thus, Horvath clearly teaches that the connection between the devices 12 and the pins 14 extending from the substrate 10 is to be formed by a conventional solder **bond** and does not anticipate creation of the "**compression** contact between the chip contacts and the inner contacts" (claim 21 as currently amended). Nor that there is "no permanent connection between the contact surfaces of the housing and the circuit contacts of the at least one integrated circuit" (claim 1 as currently amended). The fixed solder bond of the Horvath '025 reference is a limitation of the prior art which the Applicant's invention specifically addresses shortcomings of as discussed in the subject application. Thus,

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the Applicant believes that the invention as claimed in the application as currently amended is clearly not anticipated under the requirements of 35 U.S.C. § 102(b) by the Horvath '025 reference and that claims 1-3, 6, 10-11, 14, 17, 21, 23, 24, 26, and 27 are thus patentable.

The Examiner also rejected claims 7-8, 18, and 28 under 35 U.S.C. § 103(a) as being unpatentable over Horvath '025. As discussed above, the Applicant notes that Horvath '025 clearly does not anticipate the aspects of the Applicant's claimed invention of "compression contact between the chip contacts and the inner contacts" (claim 21 as currently amended). Nor that there is "no permanent connection between the contact surfaces of the housing and the circuit contacts of the at least one integrated circuit" (claim 1 as currently amended). The Applicant can find no teaching or suggestion for modification of the Horvath reference to provide these claimed aspects of the Applicant's invention nor has the Examiner provided any teaching or suggestion in the Office Action to so modify the Horvath device. Thus, the Applicant believes the independent claims 1 and 21 are patentable under the requirements of 35 U.S.C. § 103(a) over Horvath '025 and that claims 7-9, 18, and 28 properly further limit the scope of the respective independent claims, that these claims are also patentable under the requirements of 35 U.S.C. § 103(a) over Horvath '025.

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SUMMARY

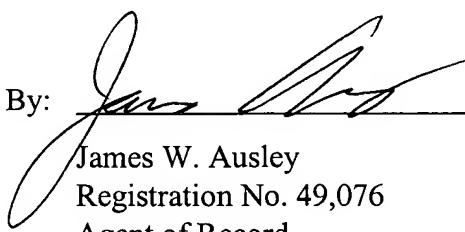
From the foregoing, the Applicant thus believes that the claims of the subject application as amended comply with the requirements of 35 U.S.C. § 112, second paragraph. The Applicant further believes that the claims of the subject application as currently amended are patentable under the requirements of both 35 U.S.C. § 102 and 103 in view of the Horvath reference. The Applicant thus believes that the application is in a condition ready for allowance and respectfully request prompt issuance of a notice of allowability. The Applicant believes that this paper is fully responsive to the rejections made by the Examiner in the Office Action, however should there remain any further impediments to the allowance of this application that might be resolved by a telephone conference, the Examiner is respectfully requested to contact the Applicant's undersigned representative at the indicated telephone number.

Please charge any additional fees, including any fees for additional extension of time, or credit overpayment to Deposit Account No. 11-1410.

Respectfully submitted,

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